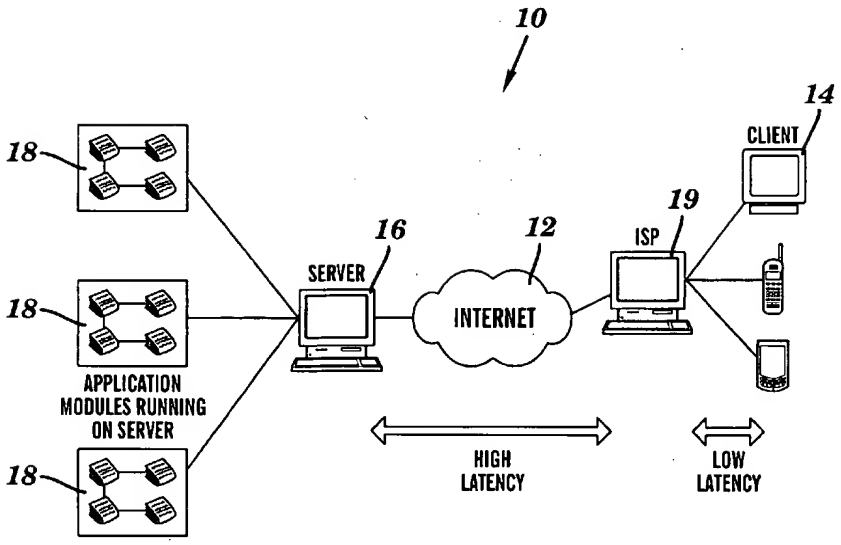

FIG. 1
RELATED ART

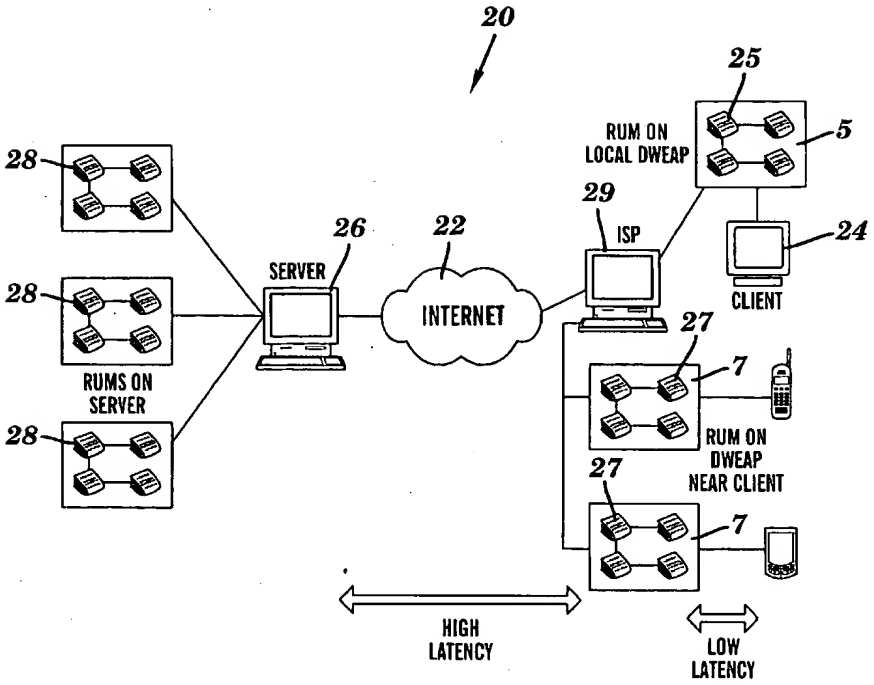
20
25
RUM ON
LOCAL DWEAP
5
28
29
ISP
26
22
24
SERVER
INTERNET
CLIENT
28
27
7
RUMS ON
SERVER
RUM ON
DWEAP
NEAR CLIENT
28
27
7
HIGH
LATENCY
LOW
LATENCY

FIG. 2

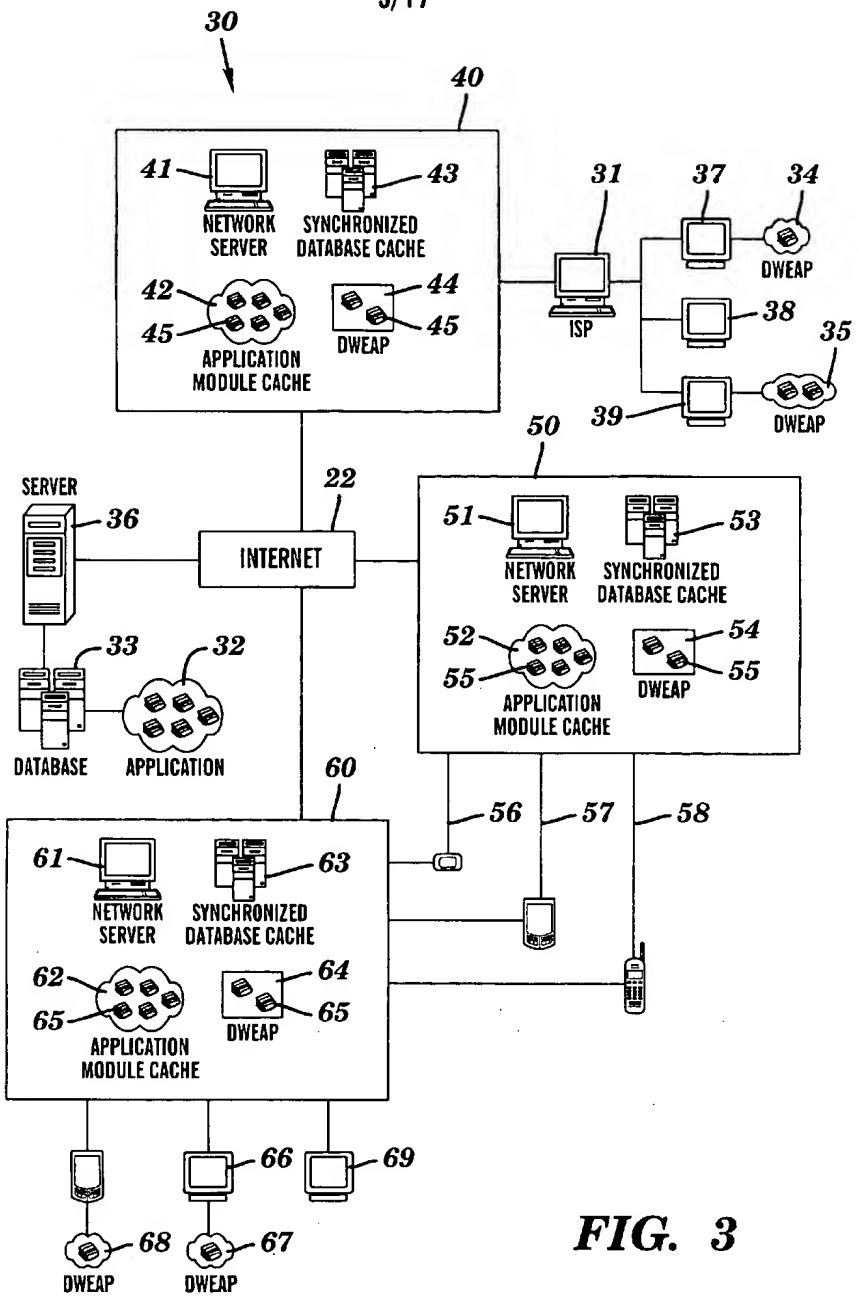
30
40
41
NETWORK SERVER
43
SYNCHRONIZED DATABASE CACHE
42
45
APPLICATION MODULE CACHE
44
45
DWEAP
31
ISP
37
34
DWEAP
38
35
39
DWEAP
50
22
SERVER
36
INTERNET
51
NETWORK SERVER
53
SYNCHRONIZED DATABASE CACHE
52
55
APPLICATION MODULE CACHE
54
55
DWEAP
33
DATABASE
32
APPLICATION
60
56
57
58
61
NETWORK SERVER
63
SYNCHRONIZED DATABASE CACHE
62
65
APPLICATION MODULE CACHE
64
65
DWEAP
66
69
68
DWEAP
67
DWEAP

FIG. 3

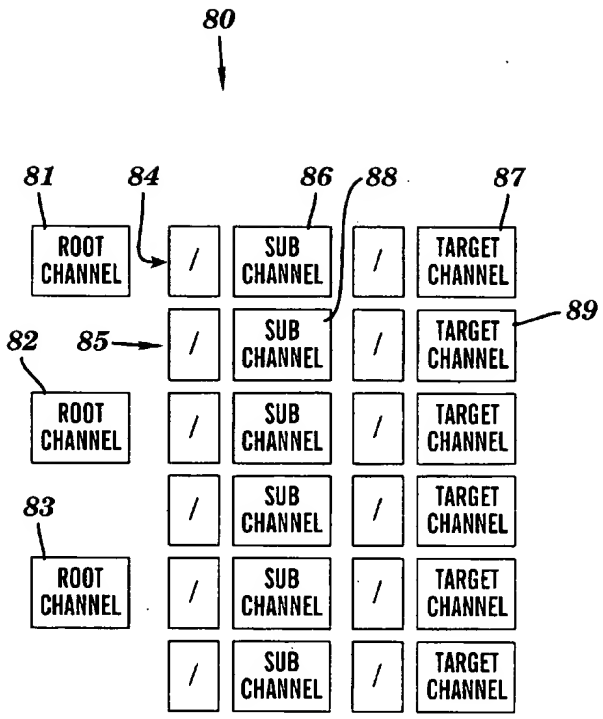
80
81
84
86
88
87
ROOT CHANNEL
SUB CHANNEL
TARGET CHANNEL
89
82
85
83

FIG. 4

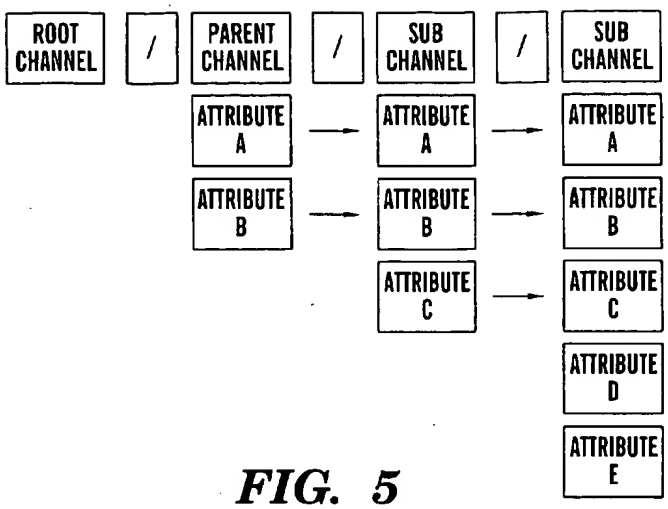
ROOT CHANNEL
/
PARENT CHANNEL
/
SUB CHANNEL
/
SUB CHANNEL
ATTRIBUTE A
ATTRIBUTE A
ATTRIBUTE A
ATTRIBUTE B
ATTRIBUTE B
ATTRIBUTE B
ATTRIBUTE C
ATTRIBUTE C
ATTRIBUTE D
ATTRIBUTE E

FIG. 5

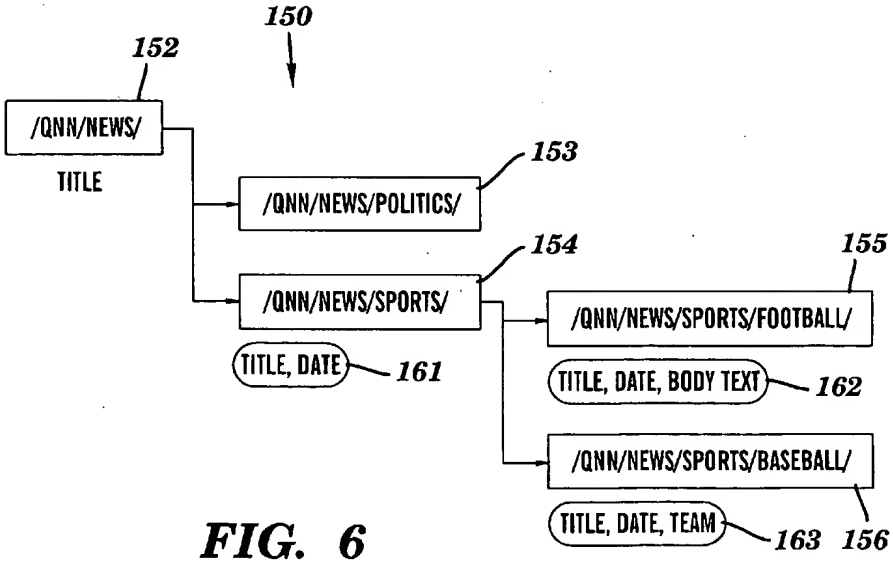
150
152
/QNN/NEWS/
TITLE
153
/QNN/NEWS/POLITICS/
154
155
/QNN/NEWS/SPORTS/
/QNN/NEWS/SPORTS/FOOTBALL/
TITLE, DATE
161
TITLE, DATE, BODY TEXT
162
/QNN/NEWS/SPORTS/BASEBALL/
TITLE, DATE, TEAM
163
156

FIG. 6

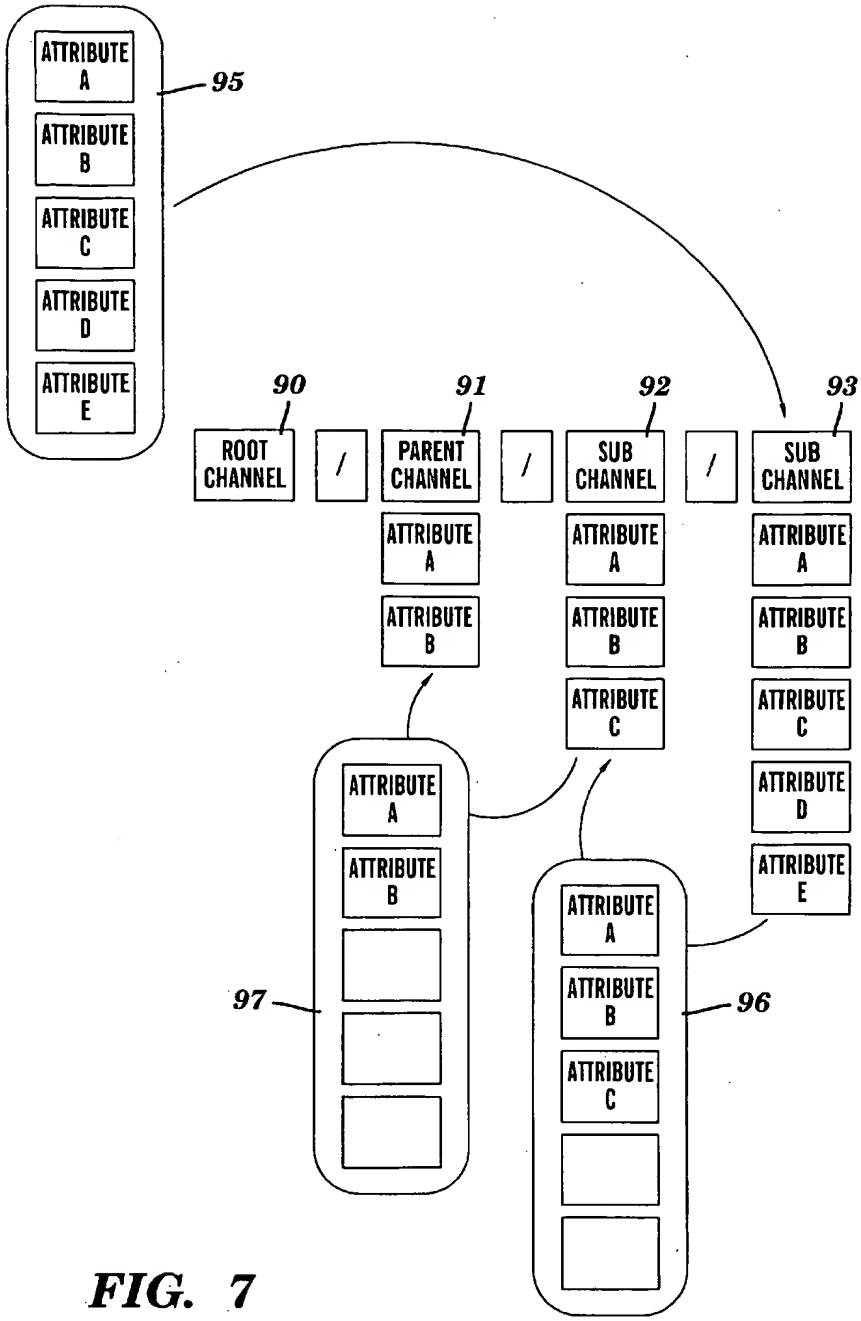
ATTRIBUTE A
ATTRIBUTE B
ATTRIBUTE C
ATTRIBUTE D
ATTRIBUTE E
95
90
91
92
93
ROOT CHANNEL
/
PARENT CHANNEL
/
SUB CHANNEL
/
SUB CHANNEL
ATTRIBUTE A
ATTRIBUTE B
ATTRIBUTE C
ATTRIBUTE D
ATTRIBUTE E
97
96

FIG. 7

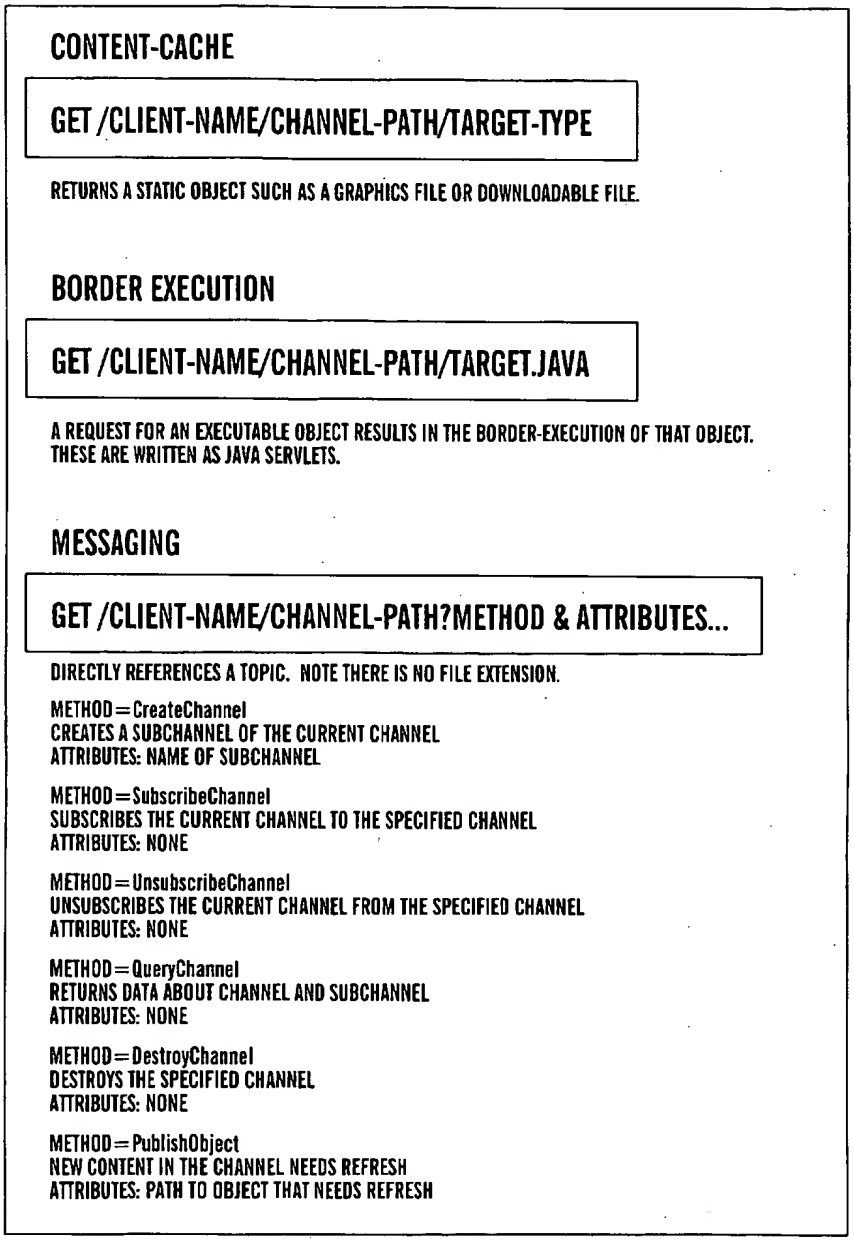

FIG. 8

Exhibit 1009, Page 54 of 64

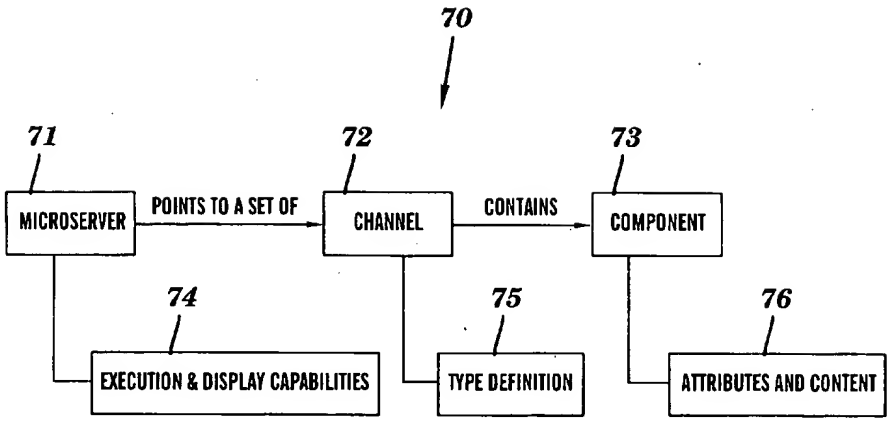

FIG. 9

Exhibit 1029, Page 55 of 64

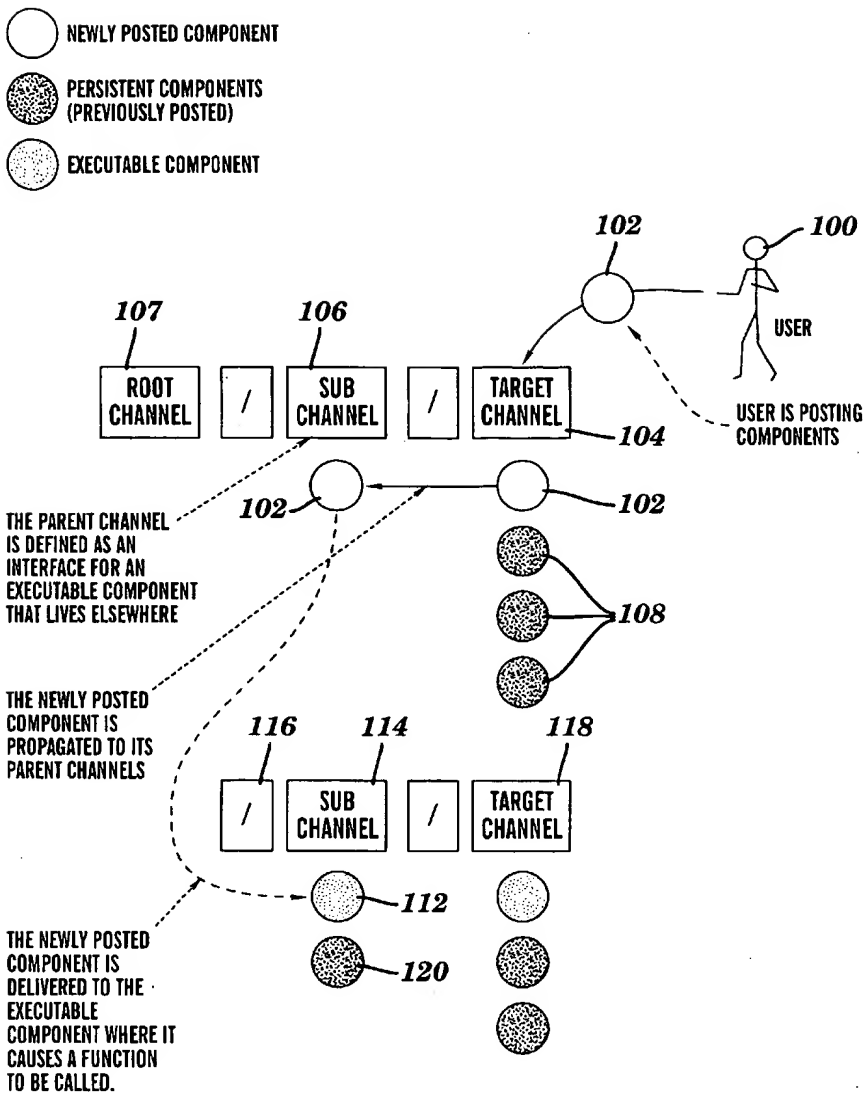
NEWLY POSTED COMPONENT
PERSISTENT COMPONENTS (PREVIOUSLY POSTED)
EXECUTABLE COMPONENT
102
100
USER
107
106
ROOT CHANNEL
/
SUB CHANNEL
/
TARGET CHANNEL
104
USER IS POSTING COMPONENTS
THE PARENT CHANNEL IS DEFINED AS AN INTERFACE FOR AN EXECUTABLE COMPONENT THAT LIVES ELSEWHERE
102
102
108
THE NEWLY POSTED COMPONENT IS PROPAGATED TO ITS PARENT CHANNELS
116
114
118
/
SUB CHANNEL
/
TARGET CHANNEL
112
120
THE NEWLY POSTED COMPONENT IS DELIVERED TO THE EXECUTABLE COMPONENT WHERE IT CAUSES A FUNCTION TO BE CALLED.

FIG. 10

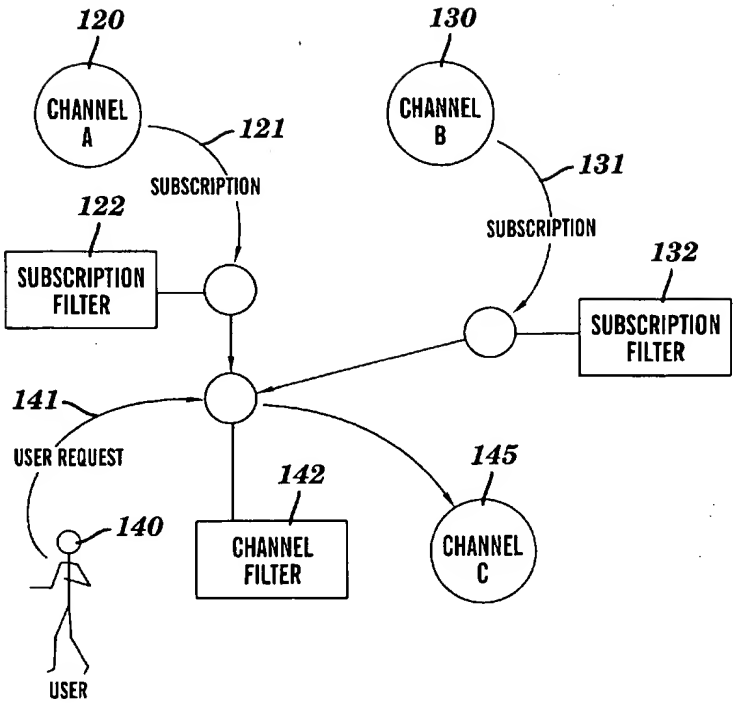
120
CHANNEL A
121
SUBSCRIPTION
122
SUBSCRIPTION FILTER
130
CHANNEL B
131
SUBSCRIPTION
132
SUBSCRIPTION FILTER
141
USER REQUEST
140
USER
142
CHANNEL FILTER
145
CHANNEL C

FIG. 11

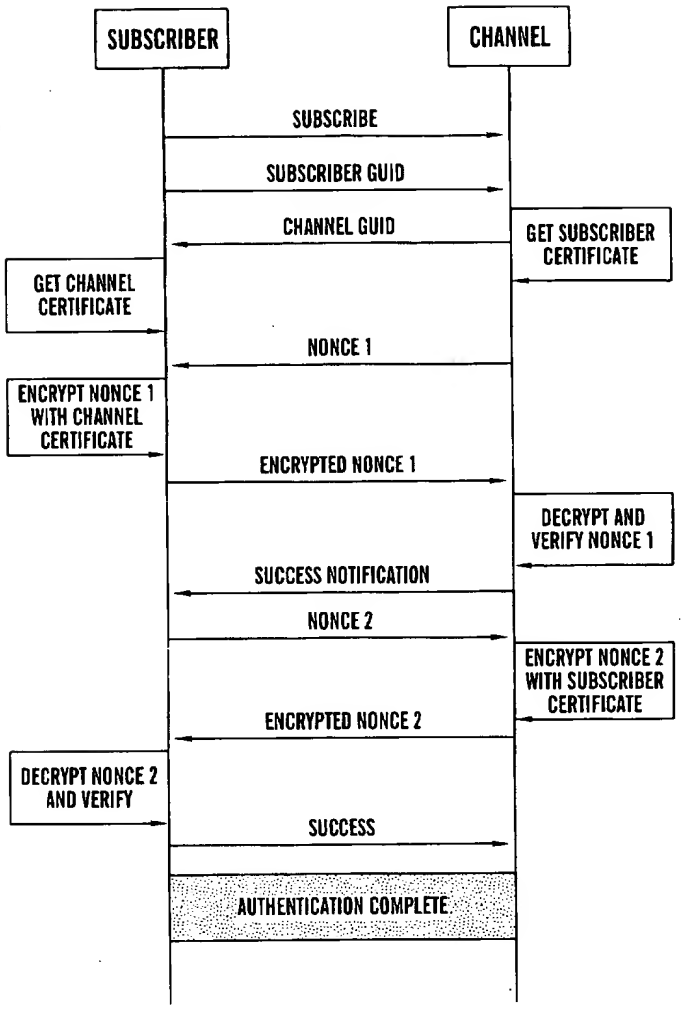
SUBSCRIBER
CHANNEL
SUBSCRIBE
SUBSCRIBER GUID
CHANNEL GUID
GET SUBSCRIBER CERTIFICATE
GET CHANNEL CERTIFICATE
NONCE 1
ENCRYPT NONCE 1 WITH CHANNEL CERTIFICATE
ENCRYPTED NONCE 1
DECRYPT AND VERIFY NONCE 1
SUCCESS NOTIFICATION
NONCE 2
ENCRYPT NONCE 2 WITH SUBSCRIBER CERTIFICATE
ENCRYPTED NONCE 2
DECRYPT NONCE 2 AND VERIFY
SUCCESS
AUTHENTICATION COMPLETE

FIG. 12

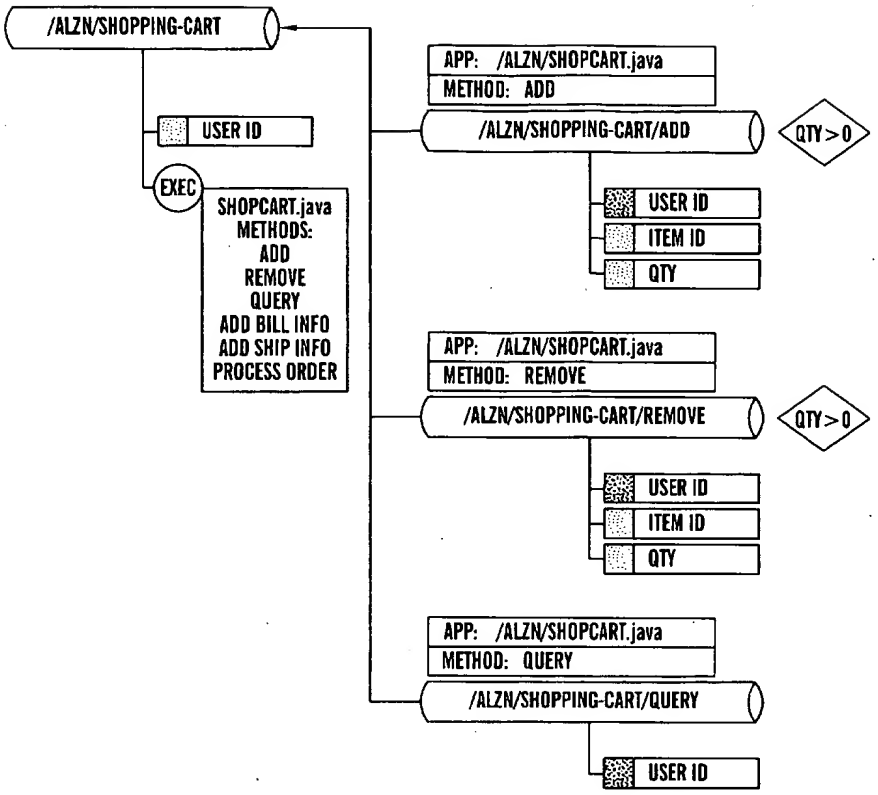
/ALZN/SHOPPING-CART
USER ID
EXEC
SHOPCART.java
METHODS:
ADD
REMOVE
QUERY
ADD BILL INFO
ADD SHIP INFO
PROCESS ORDER
APP: /ALZN/SHOPCART.java
METHOD: ADD
/ALZN/SHOPPING-CART/ADD
QTY>0
USER ID
ITEM ID
QTY
APP: /ALZN/SHOPCART.java
METHOD: REMOVE
/ALZN/SHOPPING-CART/REMOVE
QTY>0
USER ID
ITEM ID
QTY
APP: /ALZN/SHOPCART.java
METHOD: QUERY
/ALZN/SHOPPING-CART/QUERY
USER ID

FIG. 13

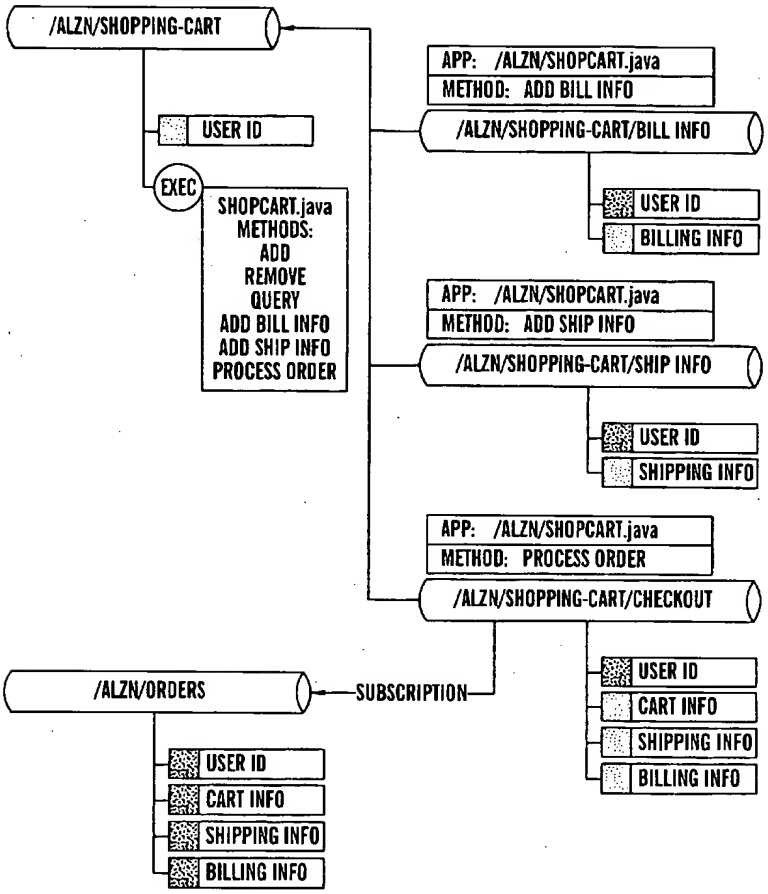
/ALZN/SHOPPING-CART
USER ID
EXEC
SHOPCART.java
METHODS:
ADD
REMOVE
QUERY
ADD BILL INFO
ADD SHIP INFO
PROCESS ORDER
APP: /ALZN/SHOPCART.java
METHOD: ADD BILL INFO
/ALZN/SHOPPING-CART/BILL INFO
USER ID
BILLING INFO
APP: /ALZN/SHOPCART.java
METHOD: ADD SHIP INFO
/ALZN/SHOPPING-CART/SHIP INFO
USER ID
SHIPPING INFO
APP: /ALZN/SHOPCART.java
METHOD: PROCESS ORDER
/ALZN/SHOPPING-CART/CHECKOUT
USER ID
CART INFO
SHIPPING INFO
BILLING INFO
/ALZN/ORDERS
SUBSCRIPTION
USER ID
CART INFO
SHIPPING INFO
BILLING INFO

FIG. 14

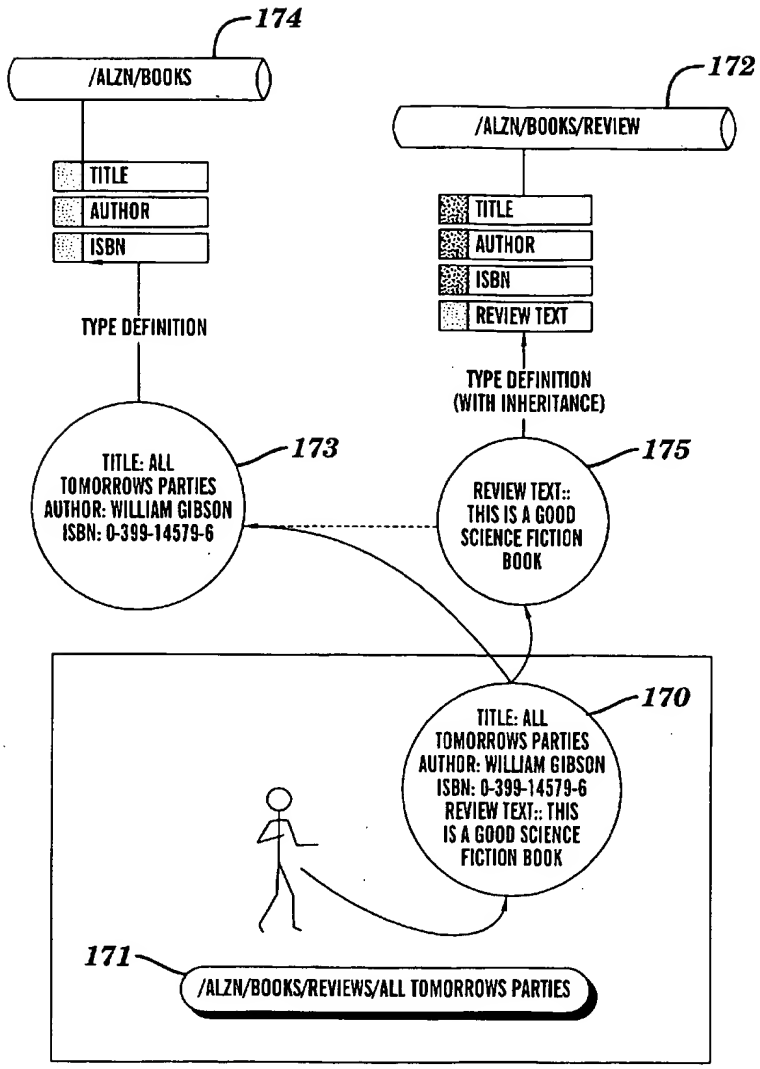
174
/ALZN/BOOKS
TITLE
AUTHOR
ISBN
TYPE DEFINITION
172
/ALZN/BOOKS/REVIEW
TITLE
AUTHOR
ISBN
REVIEW TEXT
TYPE DEFINITION
(WITH INHERITANCE)
173
TITLE: ALL
TOMORROWS PARTIES
AUTHOR: WILLIAM GIBSON
ISBN: 0-399-14579-6
175
REVIEW TEXT::
THIS IS A GOOD
SCIENCE FICTION
BOOK
170
TITLE: ALL
TOMORROWS PARTIES
AUTHOR: WILLIAM GIBSON
ISBN: 0-399-14579-6
REVIEW TEXT:: THIS
IS A GOOD SCIENCE
FICTION BOOK
171
/ALZN/BOOKS/REVIEWS/ALL TOMORROWS PARTIES

FIG. 15

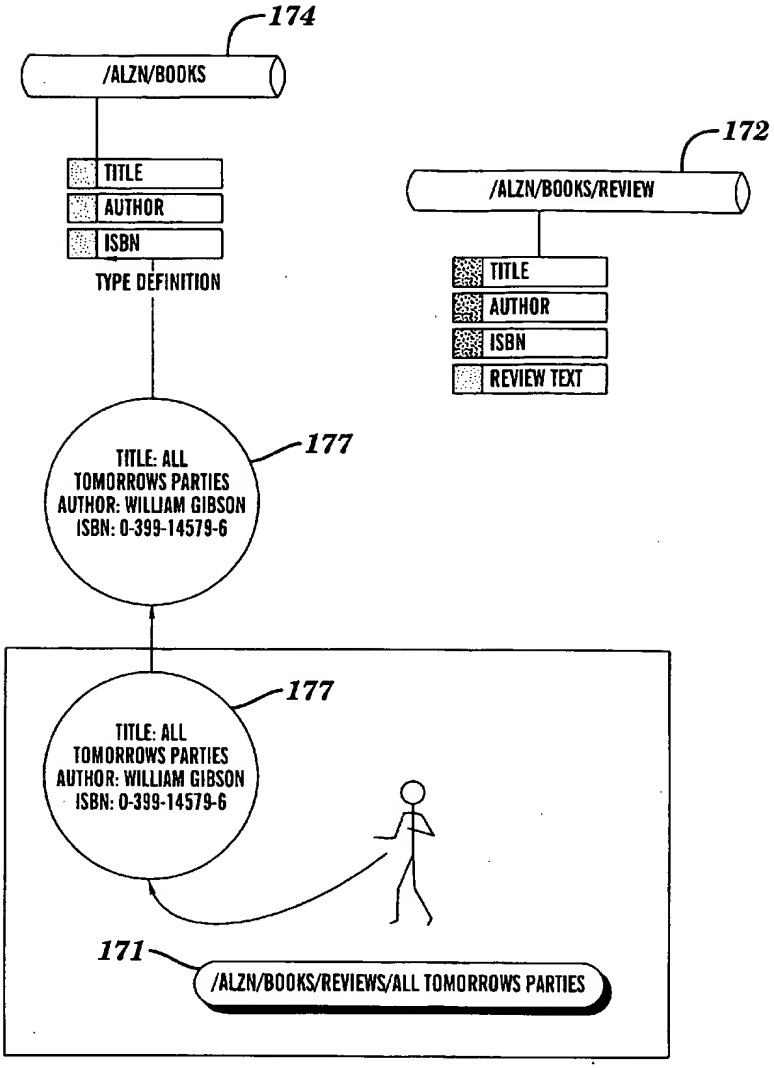
174
/ALZN/BOOKS
TITLE
AUTHOR
ISBN
TYPE DEFINITION
172
/ALZN/BOOKS/REVIEW
TITLE
AUTHOR
ISBN
REVIEW TEXT
177
TITLE: ALL TOMORROWS PARTIES
AUTHOR: WILLIAM GIBSON
ISBN: 0-399-14579-6
177
TITLE: ALL TOMORROWS PARTIES
AUTHOR: WILLIAM GIBSON
ISBN: 0-399-14579-6
171
/ALZN/BOOKS/REVIEWS/ALL TOMORROWS PARTIES

FIG. 16

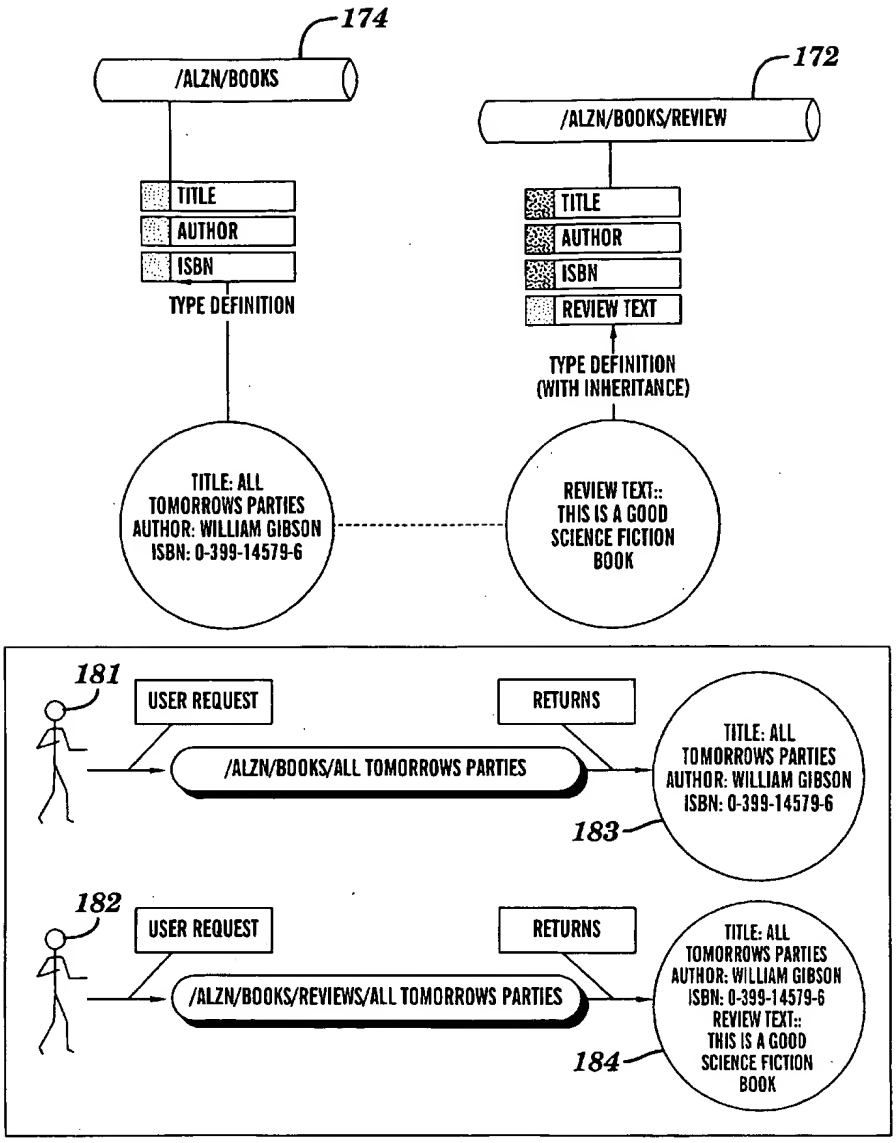
174
/ALZN/BOOKS
TITLE
AUTHOR
ISBN
TYPE DEFINITION
172
/ALZN/BOOKS/REVIEW
TITLE
AUTHOR
ISBN
REVIEW TEXT
TYPE DEFINITION
(WITH INHERITANCE)
TITLE: ALL
TOMORROWS PARTIES
AUTHOR: WILLIAM GIBSON
ISBN: 0-399-14579-6
REVIEW TEXT::
THIS IS A GOOD
SCIENCE FICTION
BOOK
181
USER REQUEST
RETURNS
/ALZN/BOOKS/ALL TOMORROWS PARTIES
TITLE: ALL
TOMORROWS PARTIES
AUTHOR: WILLIAM GIBSON
ISBN: 0-399-14579-6
183
182
USER REQUEST
RETURNS
/ALZN/BOOKS/REVIEWS/ALL TOMORROWS PARTIES
TITLE: ALL
TOMORROWS PARTIES
AUTHOR: WILLIAM GIBSON
ISBN: 0-399-14579-6
REVIEW TEXT::
THIS IS A GOOD
SCIENCE FICTION
BOOK
184

FIG. 17

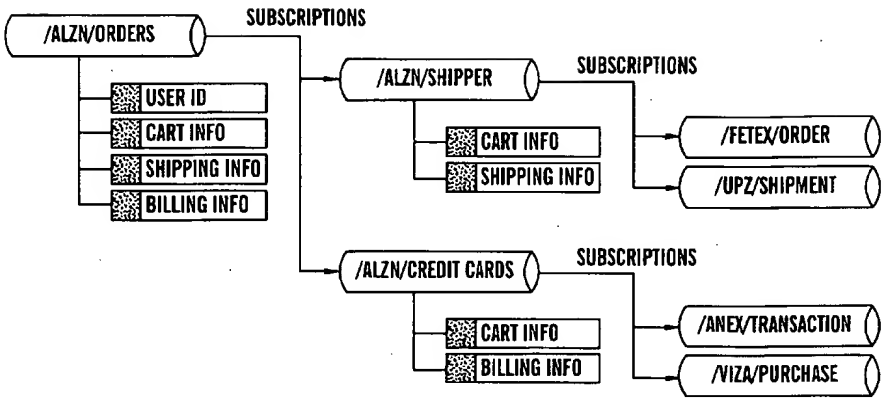
/ALZN/ORDERS
SUBSCRIPTIONS
USER ID
CART INFO
SHIPPING INFO
BILLING INFO
/ALZN/SHIPPER
SUBSCRIPTIONS
CART INFO
SHIPPING INFO
/FETEX/ORDER
/UPZ/SHIPMENT
/ALZN/CREDIT CARDS
SUBSCRIPTIONS
CART INFO
BILLING INFO
/ANEX/TRANSACTION
/VIZA/PURCHASE

FIG. 18